

Amendments to the Drawings:

The attached sheet of drawings includes changes to Figure 2. This sheet replaces the original sheet including Figure 2.

Attachment: Replacement Sheet

REMARKS

The Office Action rejects claims 1-13 under 35 U.S.C. §102; objects to the drawings; objects to the title; and rejects claims 1-13 under 35 U.S.C. §112, second paragraph. Claims 1-9 are amended herein. No new matter has been entered by way of the amendments. Applicants believe the rejections and objections are improper or have been overcome for at least the reasons below. A Petition for a one-month extension of time is submitted herewith. The Commissioner is hereby authorized to charge deposit account 02-1818 for any fees which are due and owing.

The Office Action objected to the drawings as failing to comply with 37 CFR 1.84(p)(5) because they do not include the reference numeral 21B. The drawings have been amended accordingly and Applicants believe that the objection has been overcome. Accordingly, Applicants respectfully request that the objection to the drawings be withdrawn.

The Office Action objects to the title of the invention for not being descriptive. Applicants have amended the title and believe that the objection has been overcome. Accordingly, Applicants respectfully request that the objection to the title be withdrawn.

The Office Action rejects claim 1-13 under 35 U.S.C. §112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as their invention. In particular, the Office Action rejected claims 1-13 for lacking antecedent basis for the element "a layer." Applicants have amended claims 1-9 accordingly, and believe that the amended claims are sufficiently definite and comply with §112, second paragraph. Accordingly, Applicants respectfully request that the §112, second paragraph rejections with respect to claims 1-13 be withdrawn.

The Office Action rejects claims 1-13 35 U.S.C. §102(b) in view of U.S. Patent No. 6,432,579 to Tsudi et al. ("Tsudi"). Applicants respectfully disagree with and traverse this rejection for the following reasons. Tsudi generally provides an anode having a base (i.e., a current collector) and a sintered material as an anode-active material. (See, Tsudi, col. 2, lines 29-33). The anode-active material is sintered to the current collector. The Office Action contends that this single anode-active material layer constitutes two layers. In particular, "the examiner strenuously contends that the part of the sintered material which is integrated with the base material (the current collector) represents that anode active material layer provided on the anode current collector which is alloyed therewith; and the part of the sintered material which is

not integrated with the base material) the current collector represents the layer including silicon oxide provided over the anode active material layer.” (See, Office Action, pg. 5). Applicants respectfully disagree.

Independent claims 1 and 6 of the present application recite, in relevant part, an anode active material layer which is provided on the anode collector, and which is alloyed with the anode collector on at least a portion of interface between the anode active material layer and the anode collector; and a layer including silicon oxide having a thickness of about 50 nm or more wherein the layer is provided on the anode active material layer. Independent claims 2 and 7, recite, in relevant part, an anode active material layer which is formed on the anode collector by at least one method selected from the group consisting of a vapor-phase method, a liquid phase method, and a sinter method; and a layer including silicon oxide having a thickness of about 50 nm or more wherein the layer is provided on the anode active material layer.

As described on page two of the Specification, there has been a problem with anode applications, where when the anode active material layer is formed on the anode collector by the vapor-phase method, liquid phase method, or sinter method reacts to an electrolyte, rise of internal resistance and lowering of capacity of the battery, after being held at high temperatures. (See, Specification, pg. 2, lines 9-13). In this regard, the layer including silicon oxide 22C is intended to inhibit reaction between the anode active material layer 22B and an electrolyte solution described later at high temperatures, and to prevent rise of internal resistance and lowering of capacity of the battery. (See, Specification, pg. 7, lines 4-8).

Applicants respectfully submit that the single layer disclosed in Tsuji can not be considered to be multiple layers due to a purported diffusion or integration or sintering of the anode-active material into the current collector. Given that Tsuji does not disclose a first layer and a second layer as recited in amended independent claims 1, 2, 6 and 7, Applicants further submit that Tsuji, having only a single sintered anode active layer, would exhibit similar problems such as reaction with an electrolyte solution, as described above. Accordingly, Tsuji does not recite all of the elements of independent claims 1, 2, 6 and 7, for at least these reasons.

Accordingly, Applicants respectfully request that the 35 U.S.C. §102 rejections in view of Tsuji with regard to claims 1-13 be withdrawn.

The Office Action rejected claims 1-13 under 35 U.S.C. §102(e) in view of U.S. Patent Application Publication No. 2002/0054249 to Yamamoto et al. ("Yamamoto"). With regard to independent claims 1 and 6, Yamamoto does not disclose an anode active material layer which is provided on the anode collector, and which is alloyed with the anode collector on at least a portion of the interface between the anode active material and the anode collector. Rather, Yamamoto provides a carbon anode 2d made out of graphite (and not including Si or compounds thereof) that is formed on the anode collector 1d. (See, Yamamoto, Figs. 14 & 15, and [0130]. Even assuming that the carbon anode 2d is an anode active material, Yamamoto certainly does not disclose that this layer 2d is alloyed with the anode collector 1d, as recited in independent claims 1 and 3. The intermediate anode layer 7d, cited on page seven of the Office Action for the purported teaching of a multilayer silicon based structure, is formed on top of the carbon anode 2d rather than on top of the anode collector 1d. (See, Yamamoto, Figs. 14 & 15).

With regard to independent claims 2 and 7, Yamamoto also provides that the carbon anode is formed into a paste, applied to the current collector, and then dried. (See, Yamamoto, [0067]). Therefore, Yamamoto does not disclose an anode active material formed on the anode collector by at least one method selected from the group consisting of a vapor-phase method, a liquid phase method, a liquid phase method, or a sinter method, as recited in claims 2 and 7. Moreover, Applicants respectfully submit that the presently claimed invention formed by one of the above mentioned methods is structurally different and has improved performance characteristics over the paste dried anode taught in Yamamoto. (See, Specification, pg. 11, Table 1).

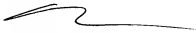
Accordingly, Applicants respectfully request that the 35 U.S.C. §102 rejections in view of Yamamoto with regard to claims 1-13 be withdrawn.

For the foregoing reasons, Applicants respectfully submit that the present application is in condition for allowance and earnestly solicit reconsideration of same.

Respectfully submitted,

BELL, BOYD & LLOYD LLC

BY



Thomas C. Basso
Reg. No. 46,541
Customer No. 29175

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